

**REMARKS**

**I. Formalities**

Applicant thanks the Examiner for acknowledging the claim for priority under 35 U.S.C. § 119, and receipt of the certified copy of the priority document submitted on January 13, 2004.

Applicant thanks the Examiner for considering the references cited with the Information Disclosure Statements filed on October 10, 2003 and February 24, 2006, respectively.

However, the Examiner did not indicate whether the Formal Drawings filed on October 10, 2003 are accepted. Applicant respectfully requests that the Examiner acknowledge and approve the aforementioned Formal Drawings.

Applicant thanks the Examiner for acknowledging the election without traverse of claims 1-21 in the Response to Restriction Requirement filed on July 10, 2006.

**II. Status of the Application**

By the present amendment, Applicant adds claims 27-28 to more fully cover various implementations of the invention. Claims 1-28 are all the claims pending in the Application. Claims 22-26 have been withdrawn from consideration. Claims 1-21 have been rejected.

The present amendment addresses each point of objection and rejection raised by the Examiner. Favorable reconsideration is respectfully requested.

### III. Claim Rejections Under 35 U.S.C. § 103

#### A. Magome in view of Urano

The Examiner has rejected claims 1 and 5-10 under 35 U.S.C. § 103(a) as allegedly being unpatentable over U.S. Publication No. 2002/0145711 to Magome *et al.* (hereinafter “Magome”) in view of JP 2000-103629 to Urano *et al.* (hereinafter “Urano”). Applicant respectfully traverses these rejections for *at least* the reasons set forth below.

The Examiner acknowledges that Magome fails to teach or suggest the feature of wherein the hydrogen has a partial pressure of 0.01 to 500 kgf/cm<sup>2</sup>, as recited in claim 1. Nevertheless, the grounds of rejection apply the cited Urano reference, alleging that Urano teaches that an improved quartz glass article may be obtained by irradiating the quartz glass article with an excimer laser or  $\gamma$ -rays in an atmosphere having a partial hydrogen gas pressure of 0.1 – 10 atm. As such, the grounds of rejection allege that it would have been obvious to one of ordinary skill in the art to utilize the partial pressure of hydrogen, as taught in Urano, in the apparatus of Magome in order to inhibit the increase loss of ultraviolet transmission of the optical elements, as taught by Urano. Applicant respectfully disagrees with the grounds of rejection.

The invention recited in claim 1 provides, among other things, an optical apparatus in which the defects in silica that forms optical element(s) included in the optical apparatus are held at a low level, even when high energy light such as ultraviolet light is emitted over a long period of time. In order to achieve this object, and other objects, the optical apparatus recited in claim 1 includes a container filled with a gas containing hydrogen, wherein the hydrogen has a partial pressure of 0.01 to 500 kgf/cm<sup>2</sup>. Because hydrogen having a partial pressure of 0.01 to 500 kgf/cm<sup>2</sup> is enclosed in the container of the optical apparatus, hydrogen is continuously supplied

into the claimed optical element of silica glass in use thereof, and the hydrogen concentration in the optical element will not decrease even though time passes and the hydrogen in the container is consumed to convert the defects into stable bonds. Accordingly, using the invention recited in claim 1, the defects originating from defect precursors can be converted into stable bonds over a long period, light transmissivity will not decrease over a long period, and an increase in transmission loss can be prevented.

However, to establish a *prima facie* case of obviousness under 35 U.S.C. § 103(a) the Examiner must show that the prior art references, when combined, teach or suggest all of the claim limitations. *See* MPEP § 2143. And, as pointed out by the Examiner, Magome is completely silent regarding the feature of a container filled with a gas containing hydrogen, wherein the hydrogen has a partial pressure of 0.01 to 500 kgf/cm<sup>2</sup>, as claimed. Nevertheless, the Examiner alleges that Urano teaches this feature. Applicant disagrees.

Urano merely teaches a method of manufacturing a product of silica glass. In particular, Urano teaches the impregnation of hydrogen into a product of silica glass, and then converting defect precursors in the silica glass into defects by radiating an excimer laser to the silica glass after the impregnation of hydrogen. However, Urano provides no teaching or suggestion regarding a continuous supply of hydrogen in the use of the product of silica glass. Indeed, there is no link whatsoever between the partial pressure of hydrogen recited in the optical apparatus of claim 1 and the pressure of hydrogen during a manufacturing process as taught in Urano.

In addition, Applicant submits that the grounds of rejection have failed to identify a reasonable motivation to combine the disparate teachings of Magome with those of Urano. The

grounds of rejection allege that it would have been obvious to one of ordinary skill in the art to utilize the partial pressure of hydrogen, as taught in Urano, in the apparatus of Magome in order to inhibit the increase loss of ultraviolet transmission of the optical elements, as taught by Urano. Applicant disagrees.

Because the object of Magome is to provide an exposure apparatus in which superior transmissivity of UV light and superior cooling performance for the optical elements are ensured, there is no motivation for one of ordinary skill in the art to look toward the teachings of Urano, whose object is entirely different from that of Magome.

In order to combine references, and establish a *prima facie* case of obviousness, the Examiner must show by clear and particular evidence the motivation, suggestion or teaching to combine references and how or why such a combination is within the skill of one in the art. *See, In re Dembiczak*, 50 USPQ2d 1614 (Fed.Cir. 1999). Even where all the elements of an invention are taught in the prior art references or known in the art, which in this case they are not, the Examiner cannot merely combine these disclosed elements. The Examiner must “show reasons that the skilled artisan, confronted with the same problems as the inventor and with no knowledge of the claimed invention, would select the elements from the cited prior art references for a combination in the manner claimed.” *In re Rouffet*, 47 USPQ2d 1453 (Fed.Cir. 1998).

Here, Applicant submits that the proposed combination of the teachings of Magome and Urano with regard to applying Urano’s alleged partial pressure of hydrogen with the apparatus of Magome is derived from impermissible hindsight reconstruction after obtaining knowledge of the present application, and is not based on the objective teachings of the prior art. *See In re*

Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); In re Jones, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992), and MPEP §2143.01. When a prior art reference requires a selective combination to render obvious a subsequent invention, there must be some reason for the combination other than the hindsight gleaned from the invention itself. Something in the prior art as a whole must suggest the desirability, and, thus the obviousness, of making the combination. Uniroyal, Inc. v. Rudken-Wyley Corp., 5 U.S.P.Q.2d 1434 (Fed. Cir. 1988). One cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention. *See In re Fine*, U.S.P.Q.2d 1596 (Fed. Cir. 1988).

Accordingly, Applicant submits that claim 1 is patentable over the cited references for *at least* these reasons. Further, Applicant submits that claims 5-10 are allowable *at least* by virtue of their dependency. As such, Applicant respectfully requests that the Examiner withdraw these rejections.

**B. Hagiwara in view of Urano**

The Examiner has rejected claims 11 and 15-21 under 35 U.S.C. § 103(a) as allegedly being unpatentable over U.S. Patent No. 6,222,610 to Hagiwara *et al.* (hereinafter “Hagiwara”), in view of Urano. Applicant respectfully traverses these rejections for *at least* the reasons set forth below.

The grounds of rejection allege that Hagiwara teaches an input lens system ILS and a gas exchange mechanism for the input lens system ILS. The grounds of rejection further allege that Hagiwara also teaches that the inert gas used in the gas exchange mechanism may comprise hydrogen. Applicant disagrees.

Hagiwara is directed to providing an exposure apparatus in which deposition of haze substance on optical members in an illumination optical system can be suppressed. In an effort to achieve this object, Hagiwara teaches that an inert gas such as high-purity nitrogen gas is enclosed as a functional gas in the input lens system ILS. As pointed out by the grounds of rejection, Hagiwara includes a statement that "...in the present invention, a chemically stable gas, for example, a rare gas, such as helium or hydrogen, may also be used as the inert gas." (Column 12, lines 23-28).

However, one of ordinary skill in the art would readily discern that the inclusion of the term "hydrogen" in Hagiwara's description is an obvious translation error. First, Applicant notes that Japanese patent application JP 9-075355, on which Hagiwara is based, and from which Hagiwara claims priority, does not include the term "hydrogen" in the corresponding description.

Second, a skilled artisan would also immediately recognize that the inclusion of the term "hydrogen" in Hagiwara is an obvious typographical or translation error since hydrogen is not classified as either a "chemically stable gas" or a "rare gas," as purported in the statement in Hagiwara that is cited by the grounds of rejection. To the contrary, one of ordinary skill in the art would recognize that the term "rare gas" only includes helium, neon, argon, krypton, xenon and radon. Indeed, the term "hydrogen" is only mentioned once in the entirety of Hagiwara's disclosure, further evidencing that the insertion of this term is an obvious translation error.

Third, for *at least* the above reasons, the cited Hagiwara reference does not contain an enabling disclosure of an exposure apparatus in which hydrogen is used as the inert gas. In order for a prior art reference to support a rejection under 35 U.S.C. § 103, it must first qualify as prior

art under 35 U.S.C. § 102. *See* MPEP §2141.01. And, “[t]he disclosure in an assertedly anticipating reference must provide an enabling disclosure of the desired subject matter; mere naming or description of the subject matter is insufficient...” MPEP §2121.01.

Therefore, in order for the current grounds of rejection to rely on the Hagiwara reference as teaching the feature of an optical apparatus comprising a container filled with a gas containing hydrogen, Hagiwara must provide an enabling disclosure of an optical apparatus comprising a container filled with a gas containing hydrogen. However, since Hagiwara merely erroneously names the optional use of hydrogen as an inert gas, without providing an enabling disclosure as to how a skilled artisan could implement hydrogen as a “chemically stable gas” or a “rare gas” in the exposure apparatus described therein without undue experimentation, Hagiwara fails to provide an enabling disclosure in this regard.

Additionally, the Examiner acknowledges that Hagiwara fails to teach or suggest the feature of wherein the hydrogen has a partial pressure of 0.01 to 500 kgf/cm<sup>2</sup>, as claimed. Nevertheless, the grounds of rejection rely on Urano as allegedly teaching this feature. Applicants disagree.

For *at least* the reasons already discussed above, Urano provides no teaching or suggestion regarding a continuous supply of hydrogen in the use of the product of silica glass. Indeed, there is no link whatsoever between the partial pressure of hydrogen recited in the optical apparatus of claim 11 and the pressure of hydrogen during a manufacturing process as taught in Urano.

Moreover, the grounds of rejection have failed to identify a reasonable motivation to combine the disparate teachings of Hagiwara with those of Urano. The grounds of rejection allege that it would have been obvious to one of ordinary skill in the art to utilize the partial pressure of hydrogen, as taught in Urano, in the apparatus of Hagiwara in order to inhibit the increase loss of ultraviolet transmission of the optical elements, as taught by Urano. Applicant disagrees.

Because the object of Hagiwara is to provide an exposure apparatus in which deposition of haze substance on optical members in an illumination optical system can be suppressed, there is no motivation for one of ordinary skill in the art to look toward the teachings of Urano, whose object is entirely different from that of Hagiwara. Indeed, the grounds of rejection have failed to show reasons that the skilled artisan, confronted with the same problems as the inventor and with no knowledge of the claimed invention, would select the elements from the cited prior art references for a combination in the manner claimed. *See In re Rouffet*, 47 USPQ2d 1453 (Fed.Cir. 1998). To the contrary, the proposed combination of the teachings of Hagiwara and Urano with regard to applying Urano's alleged partial pressure of hydrogen with the apparatus of Hagiwara is derived from impermissible hindsight reconstruction after obtaining knowledge of the present application, and is not based on the objective teachings of the prior art. *See MPEP §2143.01.*

Consequently, Applicant submits that the grounds of rejection with respect to claim 11 fail for *at least* the above independent reasons. Further, Applicant submits that claims 15-21 are

patentable over the cited references *at least* by virtue of their dependency. Thus, Applicant respectfully requests that the Examiner withdraw these rejections.

**C. Magome in view of Urano and further in view of Fujinoki**

The Examiner has rejected claims 2-3 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Magome, in view of Urano, and further in view of JP 2000-095535 to Fujinoki *et al.* (hereinafter “Fujinoki”). Applicant respectfully traverses these rejections for *at least* the reasons set forth below.

Claims 2-3 incorporate all the novel and non-obvious features of their base claim 1. For *at least* the reasons already discussed above, neither Magome, Urano, nor any combination thereof, teaches or suggests all the recitations of claim 1. Moreover, Fujinoki fails to remedy the deficient teachings of Magome and Urano. Therefore, Applicant submits that claims 2-3 are patentable over the cited references *at least* by virtue of their dependency and respectfully requests that the Examiner withdraw these rejections.

**D. Hagiwara in view of Urano and further in view of Fujinoki**

The Examiner has rejected claims 12-13 under 35 U.S.C. § 103(a) as being unpatentable over Hagiwara, in view of Urano, and further in view of Fujinoki. Applicant respectfully traverses these rejections for *at least* the reasons set forth below.

Claims 12-13 incorporate all the novel and non-obvious features of their base claim 11. For *at least* the reasons already discussed above, neither Hagiwara, Urano, nor any combination thereof, teaches or suggests all the recitations of claim 11. Moreover, Fujinoki fails to remedy the deficient teachings of Hagiwara and Urano. Therefore, Applicant submits that claims 12-13

are patentable over the cited references *at least* by virtue of their dependency and respectfully requests that the Examiner withdraw these rejections.

**E. Magome in view of Urano and further in view of Ohtsu**

The Examiner has also rejected claim 4 under 35 U.S.C. § 103(a) as being unpatentable over Magome, in view of Urano, and further in view of U.S. Patent No. 6,793,980 to Ohtsu *et al.* (hereinafter “Ohtsu”). Applicant respectfully traverses this rejection for *at least* the reasons set forth below.

Claim 4 incorporates all the novel and non-obvious features of its base claim 1. For *at least* the reasons already discussed above, neither Magome, Urano, nor any combination thereof, teaches or suggests all the recitations of claim 1. Moreover, Ohtsu fails to remedy the deficient teachings of Magome and Urano. Therefore, Applicant submits that claim 4 is patentable over the cited references *at least* by virtue of its dependency and respectfully requests that the Examiner withdraw this rejection.

**F. Hagiwara in view of Urano and further in view of Ohtsu**

Finally, the Examiner has rejected claim 14 under 35 U.S.C. § 103(a) as being unpatentable over Hagiwara, in view of Urano, and further in view of Ohtsu. Applicant respectfully traverses this rejection for *at least* the reasons set forth below.

Claim 14 incorporates all the novel and non-obvious features of its base claim 11. For *at least* the reasons already discussed above, neither Hagiwara, Urano, nor any combination thereof, teaches or suggests all the recitations of claim 11. Moreover, Ohtsu fails to remedy the deficient teachings of Hagiwara and Urano. Therefore, Applicant submits that claim 14 is

patentable over the cited references *at least* by virtue of its dependency and respectfully requests that the Examiner withdraw this rejection.

**V. New Claims**

New claims 27 and 28 are supported *at least* by page 6, lines 2-3 of the originally filed specification. No new matter has been added.

Applicant submits that claims 27 and 28 are allowable *at least* by virtue of their dependency and for the recitations set forth therein.

**VI. Conclusion**

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

**AMENDMENT UNDER 37 C.F.R. § 1.111**  
**U.S. Appln. No.: 10/649,657**

**Attorney Docket No. Q76816**

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

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Date: November 30, 2006